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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,721	06/30/2005	John Abrahamson	0074-	9661

110 7590 09/05/2008
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PHILADELPHIA, PA 19103-2307

EXAMINER	
MILLER, JR, JOSEPH ALBERT	

ART UNIT	PAPER NUMBER
4162	

MAIL DATE	DELIVERY MODE
09/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,721	ABRAHAMSON, JOHN	
	Examiner	Art Unit	
	JOSEPH MILLER JR	4162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _30 June 2005_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-23_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-23_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _06/30/3005_.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Instant claim 11 states the current is "sufficiently low to form nanotubes" and is followed by "but" which implies a higher value, however, it is stated in the specification that a higher value could cause and not avoid structural damage.

For purposes of examination, instant claim 11 is read as "...current is sufficient to form nanotubes on the substrate but sufficiently low to avoid...".

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The specification, while being enabling for forming nanotubes, does not reasonably provide enablement for forming nanotubes via the arc discharge method "without damaging the substrate". It is understood as being inherent with the arc

discharge method that at least some portion of the substrate (when used as one of the electrodes) would be damaged. Therefore in order to effectively form nanotubes, the arc discharge method would in fact damage the substrate. For examination purposes, this claim will be handled as reading "without causing structural damage to the substrate". Applicant refers to "structural damage", and avoidance thereof, in paragraph 32.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 3, 4, 8, 18, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hidemitsu (JP 11-310407) in view of Say (6,103,033).

Hidemitsu teaches a method for producing nanotubes in which a substrate (a sample holder containing a sample of SiC compacted powder [0010] is positioned between an electrode and a sample holder (which would act as a second electrode)

(abstract, [0010], and figure 1). The nanotubes are formed by "arc discharge at the sample" [0007].

Hidemitsu does not teach moving the substrate.

Say teaches a process of forming carbon (col 9, lines 32-33) on a continuous substrate web (abstract). It is evident from the method's use of rollers (Figure 12, i.e.) that the substrate is moving.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the continuous (i.e. moving) substrate taught by Say to the carbon arc discharge nanotube production method of Hidemitsu because moving and/or continuous substrates are well known in the deposition art. Additionally, the target of Hidemitsu's invention was to allow production in large quantities [0017] and certainly substrate movement/continuous production would be a step towards that goal.

Additionally, it is recognized in the MPEP that making continuous is not necessarily non-obvious over prior art. See MPEP 2144.04, E. Making Continuous: In re Dilnot, 319 F.2d 188, 138 USPQ 248 (CCPA 1963) (Claim directed to a method of producing a cementitious structure wherein a stable air foam is introduced into a slurry of cementitious material differed from the prior art only in requiring the addition of the foam to be continuous. The court held the claimed continuous operation would have been obvious in light of the batch process of the prior art.).

Regarding claims 2 and 3, Say teaches that the substrate may be moved at a constant speed or can be "intermittently stopped and started" (col 34, lines 15-22).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the constant speed movement of the substrate as taught by Say to the carbon nanotube formation method of Hidemitsu because a constant speed would allow for uniformity in the deposited matter, which is well known in the deposition art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the stopping and starting movement of the substrate as taught by Say to the carbon nanotube formation method of Hidemitsu because stopping and starting a substrate would allow variation of the deposition occurring in a particular region of a substrate (i.e. allowing for variation of residence/process time at one location on a substrate), which is also well known in the deposition art.

Regarding claim 4, Hidemitsu teaches a carbon electrode [0004].

Regarding claim 8, it is apparent in figure 1 of Say that the substrate is tensioned against the roller; in application of Hidemitsu in view of Say such that the substrate is continuous/moving, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the roller as the anode as Hidemitsu teaches the substrate support as being one of the two electrodes to produce the discharge.

Regarding claims 18 and 22, the nanotubes produced by Hidemitsu are carbon nanotubes (title: “Production of carbon nanotube”).

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hidemitsu (JP 11-310407) in view of Say (6,103,033) as applied to claim 4 above and in further view of Dodelet (WO 01/85612).

Hidemitsu in view of Say teaches a method for producing nanotubes via arc discharge in which a moving/continuous substrate is positioned between an electrode and a sample holder (which would act as a second electrode) but does not teach the use of carbon paper as a substrate.

Dodelet teaches the formation of carbon nanotubes on carbon paper (abstract) where the carbon paper is placed between two graphite electrodes and applying electric power to one of the electrodes (page 6, lines 1-3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the use of carbon paper as a substrate because Dodelet teaches that carbon paper is a known substrate material useful for the formation of carbon nanotubes and it would have been obvious to use it as the substrate of Hidemitsu with the expectation of successful nanotube growth. Additionally, Hidemitsu's invention is related to improvement in the method of manufacturing nanotubes (technical field) and production in large quantities [0017]. – it would have been obvious to one of ordinary skill in the art at the time of the invention to use carbon paper as it would be expected to be an easier material in regards to handling.

Regarding claims 5 and 7, it would be understood that the carbon paper is made of carbon fibers.

Regarding claim 6, the "web" taught by Say could be considered a belt.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hidemitsu (JP 11-310407) in view of Say (6,103,033) as applied to claim 1 above and in further view of Lai ("Synthesis of carbon nanotubes using polycyclic aromatic hydrocarbons as carbon sources in an arc discharge", Materials Science and Engineering C, 16 (2001) 23-26).

Hidemitsu in view of Say teaches a method for producing nanotubes in which a moving/continuous substrate is positioned between an electrode and a sample holder (which would act as a second electrode). The nanotubes are formed by "arc discharge at the sample" [0007].

Hidemitsu in view of Say does not teach a residence time nor substrate speed.

Lai teaches a method of forming carbon nanotubes using the arc discharge method (abstract)

Lai teaches several examples including one without an additional to form the nanotubes (experimental procedure); Lai teaches a reaction time of 5 minutes for the example without a hydrocarbon (Table 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the residence time taught by Lai in the arc discharge method of forming nanotubes because reaction/residence time would be naturally varied to produce nanotubes with desired size (or other feature). The variation of reaction/residence/process time is well known in the deposition art.

Regarding claim 10, it likewise would have been obvious to one of ordinary skill in the art at the time of the invention to vary the speed of the substrate to produce a residence time as required in the case of a moving substrate.

Claims 11 – 13, 16, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hidemitsu (JP 11-310407) in view of Say (6,103,033) as applied to claim 1 above and in further view of Zettl (6,063,243).

Hidemitsu in view of Say teaches a method for producing nanotubes via the arc discharge method in which a moving/continuous substrate is positioned between an electrode and a sample holder (which would act as a second electrode).

Hidemitsu in view of Say does not teach the arc current or current density applied.

Zettl teaches preparation of carbon nanotubes by arc-discharge (col 1, lines 19-21). Zettl teaches that the current applied in the known technique is usually from about 50 to 200A – "The electric current depends on the size of the electrodes, their separation, and the gas pressure. It can be direct current (d.c.) or alternating current (a.c.), and has ranged from about 50 A to about 200 A for electrode diameters ranging from 1/4" to over 1"." (col 1, lines 56-60) and also teaches that the nanotube yield may be formed on one or both electrodes (31-33).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply a current that is sufficiently low to avoid structural damage to the

substrate but to keep at a minimum in order to form nanotubes because it would require the minimum power consumption which is obvious to target in an energy-using process. Zettl teaches that it is known in the art that in the case of the electrode being the substrate, it is not "structurally damaged" in the process.

It also would have been obvious to one of ordinary skill in the art at the time of the invention to apply a current that would allow for vaporization of the substrate, as that is inherent and/or obvious in the arc discharge process of nanotube formation. In many of the original processes, it was well known that the "deposit may be on one or both electrodes" (Zettl, col 1, lines 31-34). The material for the nanotubes is from vaporization of the (carbon) electrodes, or, in this case, the substrate.

Regarding claim 13, Zettl also teaches that a current density anywhere from less than 0.1 to over 6 A/mm2 is known in the art (based upon the electrode dimensions and applied current range). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the current density range as taught by Zettl to the arc discharge nanotube formation method of Hidemitsu because the taught density range is well known in the arc discharge art.

Regarding claim 16, Zettl teaches cooling of the electrodes (col 4, lines 28-41). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the electrode cooling as taught by Zettl to the arc discharge nanotube formation method of Hidemitsu because cooling the electrodes would allow some control of the electrode temperature and therefore increase process control, which is sought after in the deposition art.

Regarding claim 17, Zettl teaches the use of ambient gas introduced into the chamber (col 3, lines 18-21). It is inherent that the gas introduced into the chamber could have a cooling effect on the substrate; Zettl anticipates a "change of temperature" (col 3, lines 32-35) with the introduction of gases. It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the substrate cooling taught by Zettl to the arc discharge method of Hidemitsu because substrate cooling is well known in the deposition art.

Regarding claim 19, Zettl teaches the use of “spectroscopically pure graphite” electrodes which is well known in the art and would be of the order of ppms of impurities and therefore reading on the range of the instant claim. It would have been obvious to one of ordinary skill in the art at the time of the invention to use pure electrodes because increasing the purity of any part of a process can allow increased control improve the purity over a final product, each of which is well known in the deposition and nanotube formation art.

In regards to the substrate purity, Hidemitsu discusses that the purity of the material is not limited, and since many arc discharge methods teach formation of the carbon nanotubes directly from the electrodes, it would have been obvious to use a purer electrode and hence a purer substrate.

Regarding claim 20, Zettl teaches an example of producing BC2N and BC3 nanotubes (col 5, lines 14-31). It would have been obvious to one of ordinary skill in the art at the time of the invention to produce BCN nanotubes as taught by Zettl with the

nanotube formation method of Hidemitsu so that nanoparticles of various properties may be formed.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hidemitsu (JP 11-310407) in view of Say (6,103,033) as applied to claim 1 above and in further view of Guo ("Catalytic growth of single-walled nanotubes by laser evaporation", Chem Phys Letters, 243, (1995) 49-54).

Hidemitsu in view of Say teaches formation of nanotubes by arc discharge method on a continuous/moving substrate but does not specifically teach the use of a catalyst to favor the production of single wall nanotubes.

Guo teaches a method of catalytic growth of single-walled nanotubes using a laser vaporization method (title/abstract). Guo states that "binary metal mixtures can significantly enhance SWT yields" (introduction). It would have been obvious to one of ordinary skill in the art at the time of the invention to add a metal catalyst to in the method of Hidemitsu to enhance the production of SWNTs because Hidemitsu mentions that the purity of SiC is not limited (i.e. therefore one could add other materials) and the use of catalyst metals is well known in the nanotube art. Additionally, applicant admits that prior knowledge exists on the usage of different catalysts to enhance yields of single wall nanotubes [0005].

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hidemitsu (JP 11-310407) in view of Say (6,103,033) as applied to claim 1 above and in further view of Zettl (6,063,243) and Resasco (6,413,487).

Hidemitsu in view of Say teaches a method for producing nanotubes in which a moving/continuous substrate is positioned between an electrode and a sample holder (which would act as a second electrode). The nanotubes are formed by "arc discharge at the sample" [0007].

Hidemitsu in view of Say does not teach the flushing of a gas through the chamber that contains sufficient oxygen to react with other species without oxidizing the nanotubes.

Zettl teaches preparation of carbon nanotubes by arc-discharge (col 1, lines 19-21) and Resasco teaches a method for the catalytic production of carbon nanotubes (abstract).

Zettl teaches the use of a flushing gas in the reaction chamber (col 1, lines 42-43; col 3, lines 17-34) but does not teach specifically the use of oxygen.

Resasco teaches the use of oxygen to remove carbon residue (col 13, lines 16-20) during the process of forming nanotubes.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a small amount of oxygen in the chamber flush taught by Zettl and Resasco in order to remove impurities from the nanotubes. It also would have been obvious to one of ordinary skill in the art at the time of the invention to apply the flushing step taught by Zettl to the nanotube production method taught by Hidemitsu because

"the gas inside the chamber can affect the product synthesized" and therefore provide another control variable in the process.

Additionally, the MPEP does not recognize adding a known step to a known process as being obvious over the prior art. See MPEP 2143: The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art. KSR, 550 U.S. at ___, 82 USPQ2d at 1395; Sakraida v. AG Pro, Inc., 425 U.S. 273, 282, 189 USPQ 449, 453 (1976); Anderson 's-Black Rock, Inc. v. Pavement Salvage Co., 396 U.S. 57, 62-63, 163 USPQ 673, 675 (1969); Great Atlantic & P. Tea Co. v. Supermarket Equipment Corp., 340 U.S. 147, 152, 87 USPQ 303, 306 (1950). "[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." KSR, 550 U.S. at ___, 82 USPQ2d at 1396. If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hidemitsu (JP 11-310407) in view of Say (6,103,033), Dodelet (WO 01/85612), and Zettl (6,063,243).

Hidemitsu teaches a method for producing nanotubes in which a substrate (a sample holder containing a sample of SiC compacted powder [0010] is positioned

between an electrode and a sample holder (which would act as a second electrode) (abstract, [0010], and figure 1). The nanotubes are formed by "arc discharge at the sample" [0007].

Hidemitsu does not teach moving the substrate at any speed, electrode purity, a substrate made of carbon fibres, or the use of a current setting that creates nanotubes without structurally damaging the substrate.

Say teaches a process of forming carbon (col 9, lines 32-33) on a continuous substrate web (abstract). It is evident from the method's use of rollers (Figure 12, i.e.) that the substrate is moving.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the continuous (i.e. moving) substrate taught by Say to the carbon arc discharge nanotube production method of Hidemitsu because moving and/or continuous substrates are well known in the deposition art. Additionally, the target of Hidemitsu's invention was to allow production in large quantities [0017] and certainly substrate movement/continuous production would be a step towards that goal. In regards to the speed sufficient to the arc, since Hidemitsu teaches formation of carbon nanotubes, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a speed that would leave sufficient residence time in the arc to form the desired product.

Hidemitsu in view of Say teaches a method for producing nanotubes via arc discharge in which a moving/continuous substrate is positioned between an electrode and a sample holder (which would act as a second electrode) but does not teach

electrode purity, the use of a substrate made of carbon fibres the use of a current setting that creates nanotubes without structurally damaging the substrate.

Dodelet teaches the formation of carbon nanotubes on carbon paper (abstract) where the carbon paper is placed between two graphite electrodes and applying electric power to one of the electrodes (page 6, lines 1-3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the use of carbon paper as a substrate because Dodelet teaches that carbon paper is a known substrate material useful for the formation of carbon nanotubes and it would have been obvious to use it as the substrate of Hidemitsu with the expectation of successful nanotube growth. Additionally, Hidemitsu's invention is related to improvement in the method of manufacturing nanotubes (technical field) and production in large quantities [0017]. – it would have been obvious to one of ordinary skill in the art at the time of the invention to use carbon paper as it would be expected to be an easier material in regards to handling.

Hidemitsu in view of Say and Dodelet teaches a method for producing nanotubes via arc discharge in which a moving/continuous substrate is positioned between an electrode and a sample holder (which would act as a second electrode) but does not teach electrode purity or the use of a current setting that creates nanotubes without structurally damaging the substrate.

Zettl teaches preparation of carbon nanotubes by arc-discharge (col 1, lines 19-21). Zettl teaches that the current applied in the known technique is usually from about 50 to 200A – "The electric current depends on the size of the electrodes, their

separation, and the gas pressure. It can be direct current (d.c.) or alternating current (a.c.), and has ranged from about 50 A to about 200 A for electrode diameters ranging from 1/4" to over 1"." (col 1, lines 56-60) and also teaches that the nanotube yield may be formed on one or both electrodes (31-33).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply a current that is sufficiently low to avoid structural damage to the substrate but to keep at a minimum in order to form nanotubes because it would require the minimum power consumption which is obvious to target in an energy-using process. Zettl teaches that it is known in the art that in the case of the electrode being the substrate, it is not "structurally damaged" in the process.

It also would have been obvious to one of ordinary skill in the art at the time of the invention to apply a current that would allow for vaporization of the substrate, as that is inherent and/or obvious in the arc discharge process of nanotube formation. In many of the original processes, it was well known that the "deposit may be on one or both electrodes" (Zettl, col 1, lines 31-34). The material for the nanotubes is from vaporization of the (carbon) electrodes, or, in this case, the substrate.

Zettl also teaches that a current density anywhere from less than 0.1 to over 6 A/mm2 is known in the art (based upon the electrode dimensions and applied current range). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the current density range as taught by Zettl to the arc discharge nanotube formation method of Hidemitsu because the taught density range is well known in the arc discharge art.

Zettl teaches the use of “spectroscopically pure graphite” electrodes which is well known in the art and would be of the order of ppms of impurities and therefore reading on the range of the instant claim.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hidemitsu (JP 11-310407) in view of Say (6,103,033) as applied to claim 1 above and in further view of Blankenship (6,091,612) and Herman (2002/0018745).

Hidemitsu in view of Say teaches a method for producing nanotubes via the arc discharge method in which a moving/continuous substrate is positioned between an electrode and a sample holder (which would act as a second electrode).

Hidemitsu in view of Say does not teach use of a power supply with a ripple of less than 1 volt.

Herman teaches a method of manufacturing using nanotubes (abstract) and that the arc discharge method of producing nanotubes is like that of arc welding [0007].

Blankenship teaches a power supply for arc welding that produces a “generally ripple free” output (abstract).

Since the arc discharge method of nanotube production is like an arc welding process, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the ripple free power supply taught by Blankenship with the continuous arc discharge method of nanotube production taught by Hidemitsu because the power supply would have produced smoother output and allowed for better process control.

Additionally, instant application states that "it has been found that nanotubes may not form with higher levels of ripple" [0035]. Since Hidemitsu successfully formed carbon nanotubes, it is inherent that the power supply used would use a power supply with ripple within the instant range, or Hidemitsu may not have successfully formed a nanotube product.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH MILLER JR whose telephone number is (571)270-5825. The examiner can normally be reached on Monday through Thursday from 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil, can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/JOSEPH MILLER JR/
Examiner, Art Unit 4162

/Jennifer McNeil/

Supervisory Patent Examiner, Art Unit 4162